

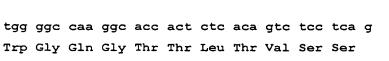
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atg ggc to Met Gly For Ctc tgg to Leu Trp I	l ttc aag The Lys ttg tct eu Ser -5 ttg tcc ttg tcc ttg tcc ttg tcc ttg tcc	atg gag Met Glu -20 ggt gtt Gly Val aca tca Thr Ser gtg aat Val Asn 30	gac	gga gac Gly Asp -1 1 gga gac Gly Asp ggt gac	Leu Val -15 att gtg Ile Val agg gtc Arg Val gcc tgg Ala Trp 35	Phe Vate of the Phe Vate of th	Val Phe acc cag Thr Gln 5 atc acc Ile Thr caa caa Gln Gln	Val -10 tct Ser tgc Cys aaa Lys	Phe cac His aag Lys cca Pro 40	96 144 192
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Glu	Ile	Lys														
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GIU	Trp	11e	GIĀ		TTE	Phe	Pro	GTĀ	_	СТĀ	Asp	Thr	Arg	_	Ser	
020	224	++0	224	50	226	~~~	202	++~	55	~~~	~~+		taa	60	204	288
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ፐህዮ	ጥህም	Cvs	Ala	Ara	Glv	ĭ.eu	Ara	Ara	Glv	Glv	ጥህጕ	Tvr	Phe	Asp	Tvr	

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<212> PRT

<213> Mouse

<223> Amino acid sequence of H chain V region of mouse anti-HM1.24 antibody

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Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe
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Glu Trp Ile Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser

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Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser 65 70 75

Thr Ala Tyr Met Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val 80 85 90

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<220> CDR(1) of L chain V region of anti-HM1.24 antibody

<223>

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Pro Tyr Trp Met Gln

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<211> 379

<212> DNA

<213> Artificial Sequence





<220> DNA coding for humanized L chain V region of
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<220> Humanized L chain V region of anti-HM1.24 antibody <223>

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Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Ser Arg
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- 105
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<212> DNA
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<220> DNA coding for humanized L chain V region of
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-1 1 5 10

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20

15

48

96

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	Thr	Ата	vaı	Ala		Tyr	GIn	GIn	Lys		GTA	гЛз	Ala	Pro			
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ser		GLY	Asp	Arg	Val	Thr	Ile	Thr	Cys	Lys		Ser	GIn	Asp	Val		
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	Thr	Ala	Val	Ala		Tyr	Gin	GIn	Lys		GTĀ	Lys	Ala	Pro			
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ьeu	ьeu	тте	ıyr		АТА	Ser	Asn	Arg	_	Thr	GTĀ	vaı	Pro		Arg		
DL -	C	C1	0	50		61	m1.	•	55 m		5 1-	m1.	-1	60	0		
Lue	ser	ĊΤĀ	Ser	GТĀ	ser	Gly	Inr	Asp	Tyr	Thr	Lue	Thr	TTE	ser	ser		
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Thr Pro Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys 95 100 105

<210> 15 <211> 418 <212> DNA <213> Artificial Sequence

<220> DNA coding for humanized H chain V region(version a)
 of anti-HM1.24 antibody

<223>

<400> 15

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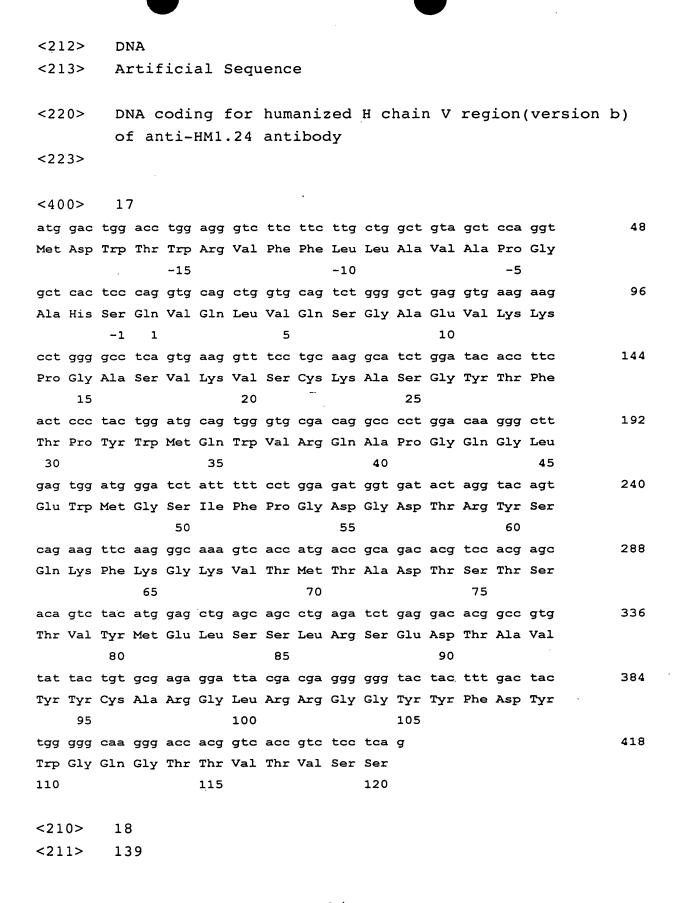
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<212> PRT

<213> Artificial Sequence

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<223>

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Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
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30 35 40 45

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser

Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Thr Ser
65 70 75

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val 80 85 90

Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
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Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser

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<212> DNA

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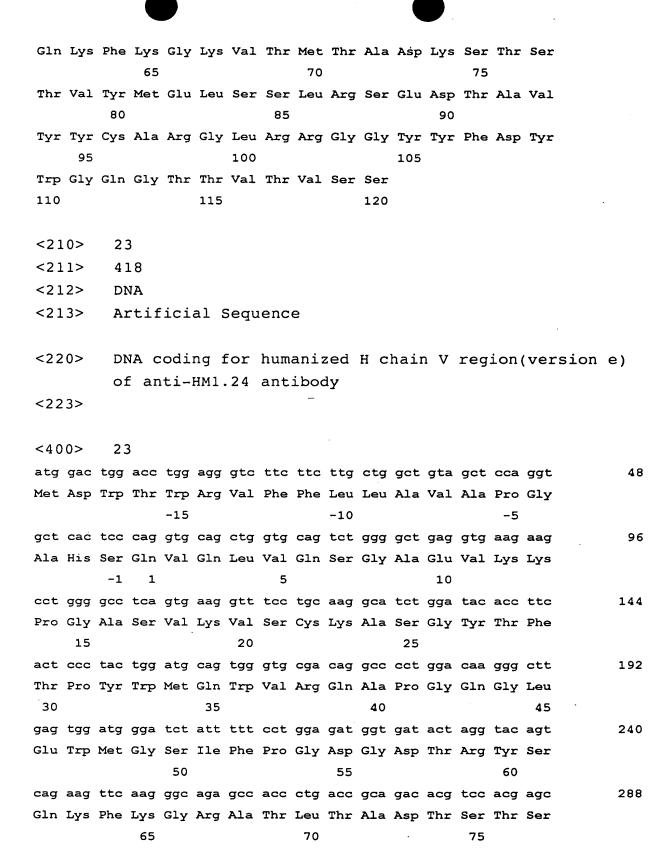
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31- ·		C	C1 -	-15	C1 -	T	17~ 1	C1-		C1	A 7 ~	G 1	\$7⇔ 1		Tare	
Ala H	пт2			vaı	GIN	neu	vai 5	GIII	ser	ĠΤĀ	vrq	10	va1	пÃз	ny s	
Pro (C1	-1	1 Sor	v-1	Larc	Va 1		Care	T ***	21-	9		m	mb	Dho	
210	v	~~~									507		107	T 3 1 2		

Thr	Pro	Tyr	Trp	Met	Gln	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu		
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Glu	Trp	Met	Gly	Ser	Ile	Phe	Pro	Gly	Asp	GJĀ	Asp	Thr	Arg	Tyr	Ser		
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Gln	Lys	Phe	Lys	Gly	Lys	Val	Thr	Met	Thr	Ala	Asp	Thr	Ser	Ser	Ser		
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Thr	Ala	_	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val		
		80					85					90					
Tyr	_	Суѕ	Ala	Arg	Gly		Arg	Arg	Gly	Gly	Tyr	Tyr	Phe	Asp	Tyr		
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			_		_	_		_			Ala			_	_		
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		-				•		-	_	-	Ser						
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Glu	Trp	Met	Gly	Ser	Ile	Phe	Pro	Gly	Asp	Gly	Asp	Thr	Arg	Tyr	Ser		
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	•	r Met Thr Ala Asp Th	
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aca gcc tac ato	gag ctg agc ago	c ctg gca ttt gag ga	c acg gcc gtg 336
Thr Ala Tyr Met	Glu Leu Ser Ser	Leu Ala Phe Glu As	p Thr Ala Val
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		a cga ggg ggg tac ta	•
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Tyr	Tyr 95	Суз	Ala	Arg	Gly	Leu 100	Arg	Arg	Gly	Gly	Tyr 105	Туг	Phe	Asp	Tyr	
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gct	cac	tcc	cag	gtg	cag	ctg	gtg	cag	tct	ggg	gct	gag	gtg	aag	aag	96
Ala	His	Ser	Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	
		-1	1				5					10				
cct	ggg	gcc	tca	gtg	aag	gtt	tcc	tgc	aag	gca	tct	gga	tac	acc	ttc	144
Pro	Gly	Ala	Ser	Val	Lys	Val	Ser	Суѕ	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	
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	Pro	Tyr	Trp	Met		Trp	Val	Arg	Gln		Pro	Gly	Gln	Gly		
30					35					40					45	0.40
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GIU	Trp	Met	GTĀ	Ser 50	TTE	Pne	Pro	СтА	55	GIĀ	Asp	Thr	Arg	60	ser	
car	224	++0	220		222	acc	366	cta		aca	asc.	300	tac			288
													tcc Ser			200
	_, ,		65	-Ly	~ ₁ 3			70			J		75			
aca	gcc	tac		gag	ctg	agc	agc		aga	tct	gag	gac	acg	gcc	gtg	336
													Thr			

90





384 tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 95 100 418 tgg ggg caa ggg acc acg gtc acc gtc tcc tca g Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115 <210> 34 <211> 139 <212> PRT <213> Artificial Sequence <220> Humanized H chain V region(version j) of anti-HM1.24 antibody <223> <400> 34 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -15 -10 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 1 5 10 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 20 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 35 40 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Thr Ser Ser Ser 70 75 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val 90 85 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 100 105 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 120 115

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Ala	His			Val	Gln	Leu		Gln	Ser	Gly	Ala		Val	Lys	Lys	
		-1	1				. 5					10				
						gtt		_	_	_						144
PIO	15	мта	ser	vaı	гуѕ	Val 20	ser	- Cys	ьys	Ата	ser 25	GTĀ	TYT	Thr	Pne	
act		tac	taa	atα	car	tgg	ata	cca	cac	acc		aas	caa	aaa	ctt	192
						Trp										1,72
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						Phe										
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cag	aag	ttc	aag	ggc	aaa	gtc	acc	atg	acc	gca	gac	acg	tcc	tcg	agc	288
Gln	Lys	Phe	Lys	Gly	Lys	Val	Thr	Met	Thr	Ala	Asp	Thr	Ser	Ser	Ser	
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						agc										336
Thr	Ala	Tyr	Met	Gln	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	
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Tyr		Cys	Ala	Arg	Gly	Leu	Arg	Arg	Gly	Gly	_	Tyr	Phe	Asp	Tyr	•
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Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
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Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 30
                    35
                                        40
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser
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Thr Ala Tyr Met Gln Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
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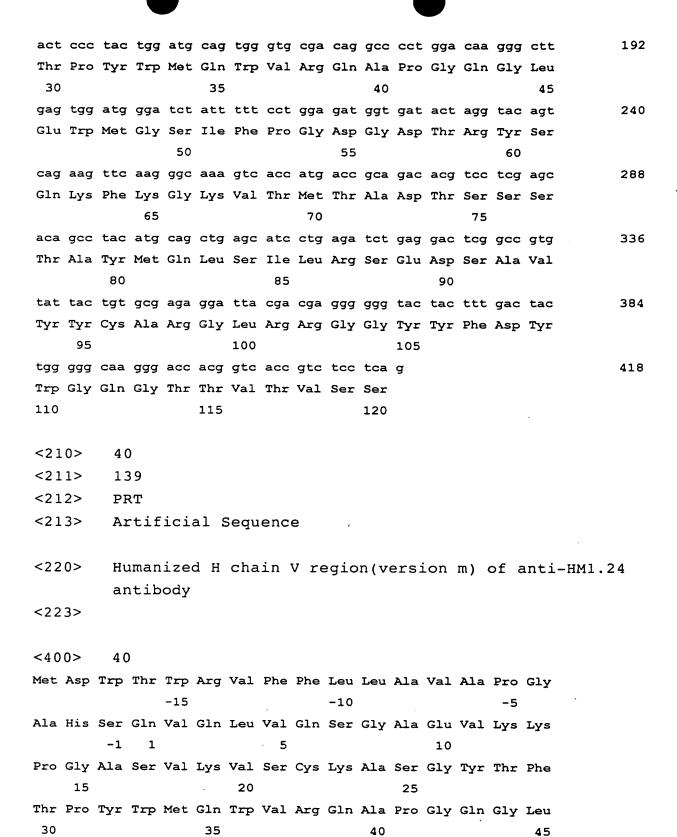
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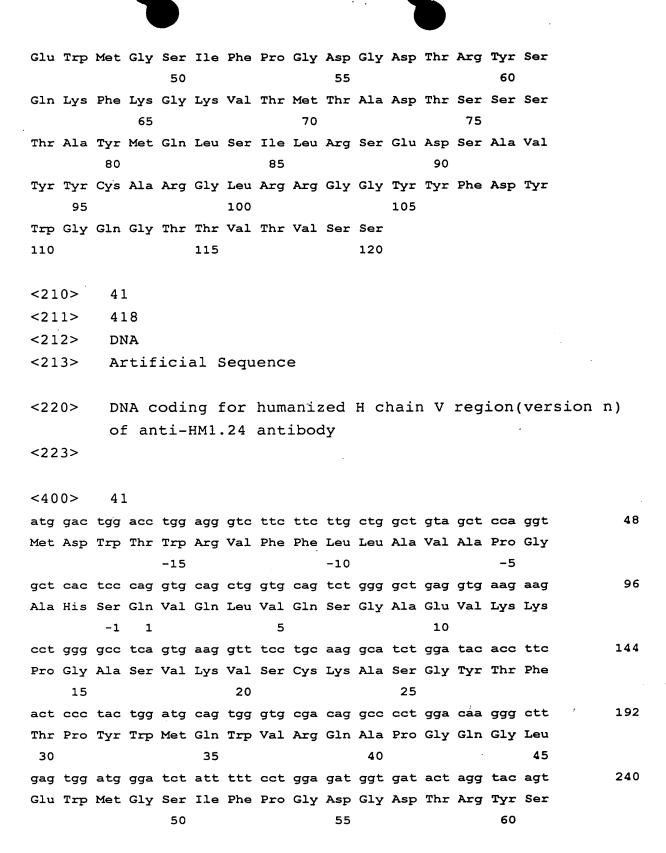
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Ala	His	Ser	Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys		
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Pro	-	Ala	Ser	Val	Lys		Ser	Суз	Lys	Ala		Gly	Tyr	Thr	Phe		
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	Pro	Tyr	Trp	Met		Trp	Val	Arg	Gin		Pro	GTĀ	GIN	GIA			
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GIG			CLY	50				CLI	55	011	p		9	60	502		
caq	aaσ	ttc	aaq		aaa	atc	acc	ato		σca	σac	aco	tcc		agc		288
_	-		-			-	Thr	_		-		_		-	_		
	_		- 65		_			70			_		75				
aca	gcc	tac	atg	cag	ctg	agc	atc	ctg	aga	tct	gag	gac	acg	gcc	gtg		336
Thr	Ala	Tyr	Met	Gln	Leu	Ser	Ile	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val		
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tat	tac	tgt	gcg	aga	gga	tta	cga	cga	ggg	ggg	tac	tac	ttt	gac	tac		384
Tyr	_	Cys	Ala	Arg	Gly		Arg	Arg	Gly	Gly	_	Tyr	Phe	Asp	Tyr		
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Pro		Ala	Ser	vaı	гла		Ser	Cys	Lys	Ala		Gly	Tyr	Thr	Phe	
mb	15		m	V- +	G1-	20	77- 1	.	01	.1-	25	01	61	~ 1	_	
	Pro	TYE	Trp	met		Trp	vai	Arg	Gln		PTO	GIĀ	GIN	GTĀ		
30	m	Wo+	C1	C.~	35	Dh.a	D	C1	3	40	3	m>	3	m	45	
Giu	пр	Mec	GIY	50	TTG	Pne	PFO	GTĀ	Asp	GTĀ	Asp	Thr	Arg	_	ser	
C1 =	T	Dho	T		T	17-1	mb	Va.t	55 mb	21-	3	m\	0	60	0	
GIII	пХэ	rne	65 65	GIA	пуѕ	Val	THE	70	Thr	AIA	Asp	Int	75	ser	ser	
Th =	ב ו מ	Т122		Cln	TON	802	T10		Arg	So.=	C1	λ a.s.		21-	77-7	
1111	ALA	80	Mec	GIII	Ten	Ser	85	neu	AIG	ser	GIU	90	Inr	ATA	vai	
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Mec	ASP	пр	THE	-15	Arg	vai	Pne	Pne	Leu -10	Leu	Ата	vaı	ATA		GIĀ	
aat	636	+00	~~~			a+~			tct					-5		96
									Ser					-	-	90
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cet	aaa			ata	227	att	_	tac	aag	acs	+++		tac	200	tta	144
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	10					20					25					





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aca	gcc	tac	atg	gag	ctg	agc	atc	ctg	aga	tct	gag	gac	acg	gcc	gtg		336
Thr	Ala	Tyr	Met	Glu	Leu	Ser	Ile	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val		
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Tyr		Cys	Ala	Arg	GTĀ	Leu	Arg	Arg	GIĀ	GTĀ	_	Tyr	Phe	Asp	Tyr		
+~~	95	~	~~~	200	200	100	200	ato.	too	+00	105						418
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Thr Pro Tyr Trp N	et Gln Trp Val Arg	g Gln Ala Pro Gly Gln Gly Leu
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Glu Trp Met Gly S	_	y Asp Gly Asp Thr Arg Tyr Ser
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	-	g acc gca gac acg tcc tcg agc 288 t Thr Ala Asp Thr Ser Ser Ser
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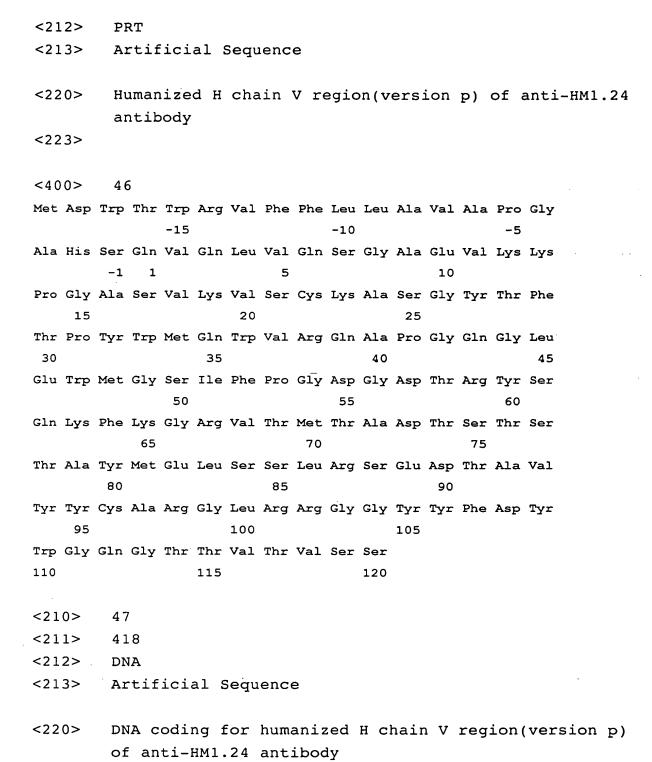




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Ala His S	Ser Gln Va	I GIn Leu		Ser Gly		_	ys Lys	•
cat aga a	-1 1	a 22a att	5	220 002	10		aa tta	144
	ıcc tca gt Ma Ser Va							144
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	yr Trp Me						-	
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Thr Ala 1	yr Met Gl 80	u Leu Ser	ser Leu 85	Arg Ser	GIU ASP		la vai	•
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Ата	nis	-1	GIN 1	Val	GIN	Leu	va1 5	GIN	ser	GTĀ	AIA	10	vaı	гуз	Lys			
Pro	Glv		_	Va l	Luc	Va 1		Cvs	Tage	Δla	Ser		Tyr	ሞስ ም	Phe			
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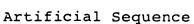




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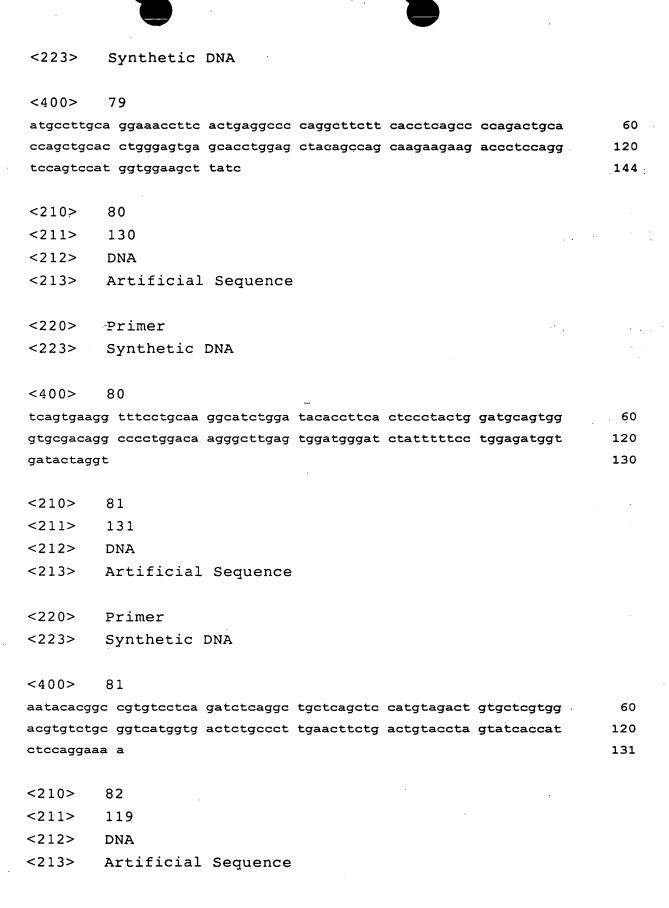
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Pro					_	_		-	-							
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Gln	Lys	Phe	_	Gly	Arg	Val	Thr		Thr	Ala	Asp	Thr		Thr	Ser	
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aca	_		_		_	_	_	_	_			-	_	_		336
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Tyr																
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Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser 65 70 75
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Ala His	Ser	Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	
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Pro Gly		Ser	Val	Lys		Ser	Cys	Lys	Ala		Gly	Tyr	Thr	Phe	
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Thr Pro	Tyr	Trp	Met		Trp	Val	Arg	Gln		Pro	Gly	Gln	Gly		
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gag tgg														_	240
Glu Trp) Met	GIĀ	ser 50	TTE	Pne	PFO	GTĀ	_	GTĀ	Asp	Thr	Arg	-	Ser	
cag aag	++'a	220		242	a+a	200	2+0	55	~~~	~~~		+	60	~~~	288
Gln Lys		_		_	_				•	_	_		_	-	200
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Thr Ala															
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Tyr Tyr															
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	m	80		_	61	_	85	_				90			_	
TYF	1yr 95	Cys	Ата	Arg	GIĀ		Arg	Arg	GTĀ	GIĀ		Tyr	Phe	Asp	Tyr	•
Тт		Gl'n	Clar	ም ኮ ፦	mb ∽	100	mp ~	77n 1	C	C	105					
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aga	gtg	ccc	atg	gaa	gac			aaq	cqc			ctt	cta	cta	aaa	
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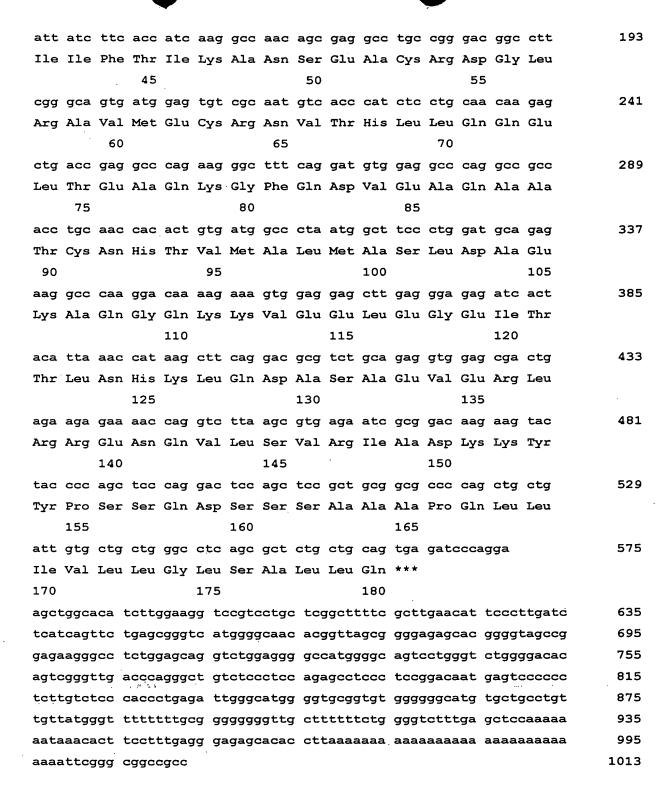
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Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg
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Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly
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Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met 85 90 95

Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys
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Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln
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Ala Leu Leu Gln

180.